

AD-A037 915

RAND CORP SANTA MONICA CALIF

F/G 5/4

U.S. PARTICIPATION IN THE RELIEF OF INTERNATIONAL DISASTERS: IS--ETC(U)

JUN 76 W R HARRIS

P-5662

NL

UNCLASSIFIED

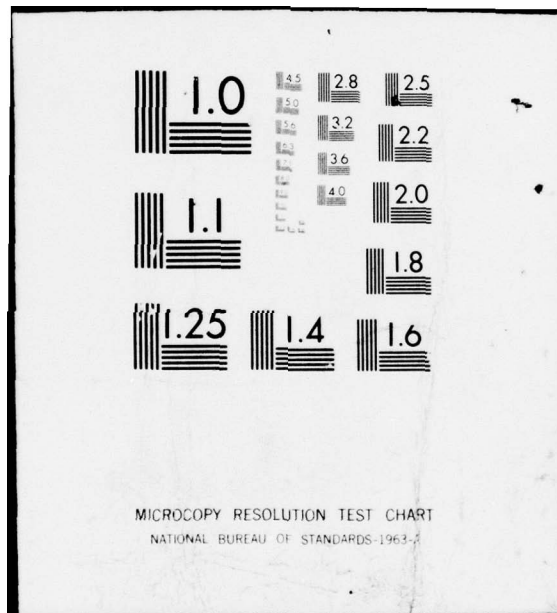
| OF |

AD
A037915



END

DATE
FILMED
4-77



ADA037915

2 P.S.

6

U.S. PARTICIPATION IN THE RELIEF OF INTERNATIONAL DISASTERS:
ISSUES FOR A PROPOSED TASK FORCE,

10

William R./Harris

11

June 1976

12 23p.

DDC
RECEIVED
APR 8 1977
C

AJ NO. —
DDC FILE COPY

296 600

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

14

P-5662

1B

The Rand Paper Series

Papers are issued by The Rand Corporation as a service to its professional staff. Their purpose is to facilitate the exchange of ideas among those who share the author's research interests; Papers are not reports prepared in fulfillment of Rand's contracts or grants. Views expressed in a Paper are the author's own, and are not necessarily shared by Rand or its research sponsors.

The Rand Corporation
Santa Monica, California 90406

PREFACE

This paper is published, with minor editing, as written in September 1971, when the author was a teaching fellow at Harvard University. It is published in 1976, in a period of mounting interest in disaster warning prevention, and relief.

During a brief consulting tour at The Rand Corporation in August 1971, I encountered some of Amrom H. Katz's preliminary thoughts on opportunities for the application of U.S. technology, humanitarian instincts, military organization, and past U.S. disaster relief expertise in future international disasters.

Since Dr. Katz's preliminary work on this subject involved others, and since this was not a formal Rand project, I restricted my investigation of the subjects to weekends and evenings, but not my interest in what appeared to offer opportunities for the United States and the community of nations.

With a background in international law I was especially interested in possibilities for international organizational involvement in augmented disaster relief services, partly because the humanitarian chords in this effort could bridge some of the reluctance of nation states in transnational dealings, and partly because I saw opportunities for international *cost sharing*, rather than augmented U.S. services for which the U.S. taxpayer alone provided.

As a sometime historian of the Berlin Airlift of 1948, I was aware of the painful qualities, reluctance, and uncertainty associated with *ad hoc* requests for the application of military systems to civilian relief operations. In the twilight of our Vietnam involvement, it seemed most natural to turn some of the tremendous U.S. military capabilities in the direction of humanitarian service. This has, of course, already been done, but perhaps without the planning, analysis, organization, and international framework which would enhance the U.S. contribution.

ACQUISITION	✓
NTIS	Whole Section
E.O.	Full Section
UNCLASSIFIED	Per ltr.
DECLASSIFIED	on file
BY	
DISTRIBUTION/AVAILABILITY	CC
DISC.	ASAC and SPE
A	

What follow are suggested issues for a Task Force to consider, assuming first the prescience to recognize the potentials in this area, and the prior creation of a Task Force on U.S. Participation in the Relief of International Disasters.

CONTENTS :

PREFACE	ii
---------------	----

Section

I. PROJECTIONS OF INTERNATIONAL DISASTERS: FREQUENCY, MAGNITUDE, and CONSEQUENCES,	1
II. PRIORITIES IN INTERNATIONAL DISASTER RELIEF,	5
III. TECHNOLOGICAL OPPORTUNITIES,	6
IV. ORGANIZATIONAL ALTERNATIVES,	9
V. RESOURCE MANAGEMENT, and,	13
VI. COST-SHARING AND DISASTER INSURANCE POOLING,	16

I. PROJECTIONS OF INTERNATIONAL DISASTERS: FREQUENCY, MAGNITUDE, CONSEQUENCES

How frequent are international disasters, judging first by the past, and second, by techniques for disaster prediction?

Statistics prior to the 20th century are not good, and even the best of the present era [probably those compiled by the Office of the Disaster Relief Coordinator, U.S. Agency for International Development] suffer from difficulties of estimation--e.g., the now-recognized overestimate of starvation in the Nigerian Civil War during 1969--and relativistic perspectives on what constitutes a disaster. The official U.S. perspective emphasizes natural over man-made phenomena, less developed over industrial regions, and non-communist over communist states. Calamities which are man-made [excepting some civil wars], which affect states relatively well-able to relieve themselves, or affecting areas wherein U.S. assistance is not especially welcome are seen as calamities but not recognized as formal "international disasters."*

Starting with the AID data covering Fiscal Years 1965 through 1970, a six-year period, and bearing in mind the constricted AID perspective of formal international "disasters," we recognize, nonetheless, that major disasters are expectable surprises of relatively steady frequency, though substantially variable in intensity. In FY 1965 through FY 1970 the U.S. government participated in relief of 302 foreign disasters, an average of 50 per annum, in an average of 38 countries. Disaster deaths in FY 1965, 1966, 1967, 1968, and 1970 averaged just under 30,000 per annum. This excludes the extraordinary effects of the Nigerian civil war, especially

* This observation is derived from perusal of the 10 reports of the Disaster Relief Coordinator, AID, and from a telephone conversation with Dr. Enrico Quarantelli, Director, Disaster Research Center, Ohio State University, 127-129 West 10th Street, Columbus, Ohio 43201. The 6-year official AID disaster count for FY 1965 through FY 1970 places 32% of disasters in Latin America (n=96), 27% in Africa (n=80), 20% in East Asia (n=60), 19% in the Near East and South Asia, only 3% in Europe (n=10), and none in North America (percentages total 101%). East Asian and European data rarely reflect disasters in communist states, Cf, Tsai Ping-wen, "Natural Disasters in Mainland China During the Last Six Months." [in Chinese] *Studies on Chinese Communism*, v. 5 (August 10, 1971), pp. 66-70.

pronounced in Biafra, with 1,018,534 reported deaths in FY 1969, now seen as an overestimate, and it excludes the FY 1971 data not yet available on the effects of civil war in East Pakistan. Average U.S. national assistance, including contributions of U.S. voluntary agencies which involve substantial efforts on the part of AID Disaster Relief personnel, amounts to 64.4 million dollars in these six years. Even in *real* dollars U.S. disaster relief assistance has tended to rise in this period. The magnitude of the U.S. role in relief of international disasters should be evaluated in the context of the effort expended on domestic disaster relief operations. Domestic disaster relief has, in general, exceeded the costs of U.S. involvement in international disaster relief--as might well be expected. In FY 1970 the Office of Emergency Planning, through its Disaster Assistance Division, expended \$144.9 million in domestic disaster assistance.*

During the six-year period of FY 1969 through FY 1970, the U.S. foreign disaster assistance effort involved support in disasters involving more than 73 million victims, more than 12 million disaster victims per year.

From a longer perspective, none of the disasters in this six year period was of the first order of magnitude, excepting perhaps the Peruvian earthquake of May 31, 1970, the most severe earthquake, measured in death and destruction, in the modern history of the Western hemisphere. [Its 66,794 casualties, some 143, 331 injured, and ca. 500,000 homeless surpassed damage in various smaller earthquakes and that of 1797 in Ecuador, with an estimated 41,000 deaths.] Previous losses in civil war have far exceeded those in Nigeria. And an earthquake in Shenshi province, China, is estimated to have killed some 830,000 people in the year 1556.**

* See *The Budget of the United States Government, Appendix, Fiscal Year 1972* (Washington, D.C.: Government Printing Office, 1971), p. 1014; *The Budget of the United States Government, Fiscal Year 1972, Special Analyses* (Washington, D.C.: Government Printing Office, 1971), p. 292.

** Disaster Relief Coordinator, AID, *Ninth Report, Fiscal Year 1969*, p. 143.

The Peruvian earthquake of May 1970 cleaned out the sole forward U.S. stockpile of disaster relief supplies, that of AID/DRC & SOUTHCOM in Panama, within a few days,^{*} but the earthquake was of modest proportions when viewed in the sweep of human history. The San Francisco earthquake of 1906 produced tremors which would be about 8.25 on the modern Richter scale; the San Francisco City-County Disaster Corps director, Edward Joyce, estimates that a recurrence of that magnitude, today, would leave up to 350,000 dead and injured.^{**}

In rough terms, we scarcely seem to be prepared for the relatively modest disasters the world has experienced in recent years, let alone the calamities which have been experienced from century to century. Furthermore, preparations for relief of international disasters may have a payoff of special meaning if--nuclear war aside--the next big international disaster comes at home.

The preceding indicates that knowledge of past disasters is quite limited, but that even a quick run through evidence of the past is sufficient to suggest that there is a reasonable basis for Bayesian prediction of future disasters.

Further, methodologies of disaster prediction may help to refine the crude Bayesian guidelines we are likely to extract from past experience. Seismological advances lead some to expect breakthroughs in earthquake predictions; meteorological advances lead others to expect breakthroughs in the prediction, perhaps the control of hurricanes, typhoons, and tornadoes; advances in overhead reconnaissance lead others to expect more accurate predictions of flooding and drought, disease and famine. The frequency and variety of disasters, and vast range of possible magnitude, all suggest the value of improved methodologies of disaster prediction and estimation.

- o Should the U.S. government broaden or concentrate its effort in support of disaster prediction?

^{*} Disaster Relief Coordinator, AID, *Tenth Report, Fiscal Year 1970*, p. 208.

^{**} Gordon Thomas and Max Morgan, *The San Francisco Earthquake* (1971).

- o Should there be a U.S. Government Disaster Prediction Center, and if so, should it be co-located or separately located from the National Disaster Information Center run by the Office of Emergency Preparedness?

II. PRIORITIES IN INTERNATIONAL DISASTER RELIEF

It is not clear that past U.S. assistance in foreign disaster relief is consistent with any articulated set of priorities. Are we trying to save lives, win friends, alleviate discomfort, hasten reconstruction, and if so, in what priority, under what rationale?

If we would like to reduce the annual number of disaster victims from the 12 million or so these past years (involving disasters of only modest scale), perhaps we should be more involved in the structural safety of housing construction, and less concerned with post-disaster relief.

Do our disaster relief programs relate in some sensible way to plans for limitations on population growth or redistribution, or are we perpetuating population problems of Malthusian dimensions?

We can be justifiably proud of our humanitarian relief efforts, yet at the same time recognize that any more substantial program should be based upon a prior evaluation of pre- and post-disaster mitigation objectives.

- o What have been our priorities in past disaster relief operations?
- o In what ways should these priorities be modified?
- o Should certain forms of assistance be limited to states with "qualifying" birth control programs?

III. TECHNOLOGICAL OPPORTUNITIES

The high returns of timely and appropriate action in disaster relief justify the expenditure of some effort in identifying technological opportunities for pre- and post-disaster mitigation.

We should be interested in the following:

- o Which areas of technological innovation are most likely to avoid or mitigate the scope of natural disasters?
- o Which areas of technological innovation are most likely to facilitate post-disaster relief operations?
- o What presently available technologies should be applied to disaster relief operations or disaster prevention?
- o What technological services are the U.S. especially well able to provide?
- o What technological services deserve R&D support?

Past disaster relief operations indicate the existence of substantial inertia in the application of even pre-existing technologies to disaster relief. The non-use of various U.S. military systems of possible relevance suggests the need for some organizational locus for the identification and adaption of military technologies in this field. [See Part IV, *infra*.]

Reconnaissance technologies have been utilized on an *ad hoc* and often delayed basis, despite obvious potentials.*

* Among the recent U.S. disaster relief operations with inadequate recce support were: the Peruvian earthquake of May 31, 1970, the effects of which were largely unknown for days; on June 12th NASA offered a Lockheed Electra Remote Sensing Recce aircraft, on July 1 the Peruvian government accepted, on July 12th the plane arrived in Peru, and the first photos were sent to Washington, later to the Peruvian government, by *diplomatic pouch*, arriving on August 6th. The adequacy of the photo-interpretation is not known; damage in the undeclared Honduras-El Salvador war of 1969 was not identified by recce, and the extent of flooding in South Korea in September 1969 was also misestimated without benefit of extensive recce. See Disaster Relief Coordinator, AID, *Tenth Report, Fiscal Year 1970, Foreign Disaster Emergency Relief*, pp. 140-141, 185-187, 198, 219, 313-314.

Since housing collapses are a major contributor to disaster death and injury, technological advances in housing construction are of obvious interest. What techniques exist for the strengthening of pre-existing residences with heavy, poorly-supported roofs--bearing in mind that the application of improved technologies to only new construction will leave untouched most of the residential structures in earthquake-prone regions? What techniques are appropriate for new construction, and for emergency shelters in the aftermath of disaster?*

The application of modern airlift and sealift technology is also of clear relevance. (In the Peruvian earthquake of 1970, the first C-130 transport did not land at the Anta airstrip until D + 23 day). Air-dropping of supplies remains a problem. As we found in the Berlin Airlift of 1948, the airdropping of foodstuffs and milk, without parachutes or some

One important contribution of reconnaissance technology may be to identify "creeping" disasters such as droughts, famines, diseases, or floods, which lack a discrete event of such magnitude as to coalesce foreign assistance and relief operations. Contoured, or time-phased surveys might be of value. Stephen R. Tripp has observed, "Earthquakes, hurricanes, typhoons and cyclones and floods attract the most international assistance. Creeping disasters such as drought and afflictions such as epidemics receive less bilateral reaction from other nations..." *Tenth Report, ibid.*, p. iv.

* There is a series of United Nations reports on earthquake-proof or earthquake resistant housing progress. In 1960 the University of Tokyo established a training center to familiarize architects and engineers with "earthquake proofing" principles, and in 1962 the Government of Japan obtained U.N. Development Program aid to establish an International Institute of Seismology and Earthquake Engineering. An earthquake in Venezuela did unexpected damage to supposedly earthquake-resistant high rise structures, leading to reinvestigation of earlier conclusions. See: Disaster Relief Coordinator, *Seventh Report*, pp. vii, viii. After the Yugoslav earthquake of 1967 light, wooden pre-fab temporary shelters were recommended. *Ibid.*, pp. 15-21. For shelter in the aftermath of the West Central Anatolian earthquake of March 28, 1970, the West German Red Cross provided the Turkish victims a new form of pre-fabricated "Igloo" housing manufactured by the Farben-Bayer Company, 300 in all, supplementing the U.S. relief "tents" which have been the standard substitute housing in the past. These consist of "a half-sphere...blown up over a motorized base and sprayed with a chemical mixture...A foam half-sphere results and openings are cut out for plastic windows and doors. Fabrication of the igloo requires one hour. Since the insulating foam substance keeps heat in, a temperature of about 18 degrees centigrade is maintained...The 'roundhouses' can be picked up by two men and placed in any spot chosen." *Tenth Report*, op. cit., p. 305.

alternative decelerating mechanism resulted in the destruction of the relief supplies. But in 1970 this same technique was tried, unsuccessfully, in U.S. airdrops over Peru.

In the Korean War U.S. forces benefitted from M.A.S.H. units of medical and cinematic fame, replaced in Vietnam by M.U.S.T.* units. But where do we find emergency mobile medical units in support of disaster relief operations?

Amidst the "green revolution" there is work on improved fertilizers and disease-resistant crops. But where is the work on crops and seeds which survive under partial-drought conditions, or fertilizers which are suitable for economical transportation and application under emergency conditions?

Opportunities for the application of new technologies to disaster mitigation and relief are manifold. If some of these technologies are presently available within military organizations, then we should consider either extracting some of these capabilities, or operating disaster relief operations, or components of these operations, through these organizations. Perhaps also some of the large-scale R&D efforts of military organizations can be directed to some of these problems, which are not dissimilar to some problems of war. Indeed, wars are among the major producers of disaster victims.

* M.U.S.T. = Mobile Unit Surgical Transportable. Air conditioned, modular hospital and surgical facilities which may be airlifted and emplaced by helicopter.

IV. ORGANIZATIONAL ALTERNATIVES

Organizational issues depend in part upon prior evaluation of the scope, purpose and priorities in disaster relief operations. Should there be greater emphasis upon pre-disaster planning and mitigation operations, for example, the case for transferring the coordination and management of U.S. disaster relief efforts abroad from the Agency for International Development to the Office of Emergency Preparedness will be a different one from that which could be made at present. Even assuming the continued emphasis upon post-disaster support operations, it is not clear that A.I.D. is a more appropriate central forum than O.E.P. would be. If much of the relevant equipment and technology for disaster relief operations is to be found within the Department of Defense, and if in future efforts we should hope to incorporate the relevant military components in more prompt, efficacious ways, then we should analyze alternative behavior patterns which can be anticipated from alternative locations of responsibilities, expertise, resources, and authority.

- o Should primary responsibility for coordination and management of U.S. support of international disaster relief operations be vested in the Office of the Disaster Relief Coordinator, AID, or in some alternative forum, such as creation of an International Disaster Assistance Division within the Office of Emergency Preparedness?*
- o Irrespective of the decision as to the forum for management of post-disaster relief operations, should responsibilities

* General Lincoln, the Director of O.E.P. also serves as Chairman, National Council on Federal Disaster Assistance, serving on which are representatives of DoD, Interior, Commerce, Agriculture, Labor, HEW, HUD, Transportation, SBA, OEO, and OEP. President Nixon established the National Council on April 22, 1970. Executive Order 11526, pub. April 24, 1970. 35 *Federal Register* 6569. OEP, with 227 permanent employees (prior to the wage-price freeze of August 1971), already operates a (domestic) Disaster Assistance Division, with 64 permanent employees, in FY 1970, and 81 planned for FY 1972.

for pre-disaster planning and mitigation efforts be vested in the Office of Emergency Preparedness?*

- o How can military resources, technology, and expertise be best utilized? Should there be a U.S. Disaster Relief Command, or continued reliance upon (minimal) preparation and involvement on an *ad hoc* basis of the various Regional and specialized commands? (E.g., USSOUTHCOM, MATS).**

Is the U.S. government obtaining adequate analyses of past disasters and projected disasters, patterns of behavior and resource utilization? The delay in establishing a fixed-wing landing strip at Anta, Peru and the repeat of the Berlin Airlift no-parachute airdrops of 1948 suggest the inadequacy of organizational memory.

- o Should there be a U.S. Government Disaster Research Center?***

Assuming that there is attention to the internal organizational needs of the U.S. Government for the mounting of national assistance in disaster

* Civil defense preparedness has met with public apathy. Support of civil disaster relief operations abroad involves subjects seemingly more manageable and less frightening than those of nuclear catastrophes. Merged responsibility could result in greater funding and complementary resource utilization.

** The Berlin Airlift case is relevant to organizing for large-scale operations.

*** The National Academy of Sciences and other agencies have sponsored work on civil disasters, including some studies of the Disaster Research Center, Ohio State University, mainly sociological studies of domestic disasters. See Disaster Research Center, Ohio State University, *Publications* (Columbus, Ohio: July 1971), mimeo.

There is no evidence in the public domain that some of the more serious disaster risks have been the subject of adequate research. As an example, there are various studies of the effects of nuclear war upon civil populations of involved states, but there are no studies which this author has located of the consequences (in other than generalized prognoses) in other areas of the globe. If there were a nuclear war between the U.S.S.R. and the People's Republic of China, lasting longer than a few days and involving ground bursted weapons, what would the consequences be for life elsewhere in the Northern hemisphere? For global resource distributions? For domestic and international relief requirements, priorities, and opportunities? On a lesser scale, have forecasts of nuclear weapons proliferation been related to forecasts of nuclear accidents? And to international disaster relief needs?

avoidance, mitigation, and relief, we turn to the relationships between national disaster relief efforts and the various private and international disaster relief organizations which exist or which ought to exist.

- o What roles can private U.S. voluntary agencies perform more effectively than national or public international organs?
- o What should U.S. Governmental priorities be as between bilateral and multilateral disaster relief efforts and institutions?
- o What should U.S. Governmental priorities be as between universal (U.N.) multilateral disaster relief efforts and regional efforts (e.g., OAS, or NATO)?
- o If an international cost-sharing disaster insurance pool is feasible on a universal (U.N.) or regional basis (e.g., a Pan American Disaster Insurance Corporation), how should it be organized? [See topic VI, infra]
- o How can the United Nations Organization integrate its disaster relief operations, relate these to the work of the various specialized agencies, and to global environmental forecasting and ecosystem planning?*

How will global environmental resources and threat forecasts be related to disaster research efforts? When does an environmental problem qualify as a "disaster"? (When "relief" is no longer possible?)

* The U.N. General Assembly has authorized pre-disaster planning under G.A. Resolution 2453 (XXIII), as recommended by the League of Red Cross Societies (LICROSS), Geneva. In 1971 LICROSS officials urged establishment of an international disaster assistance organization. At present, the U.N. effort is fragmented and dispersed among many agencies. When U.S. Secretary of State Rogers presented the U.N. Secretary-General the first \$1 million for relief efforts in East Pakistan in August 1971, the Secretary-General attended the meeting supported by: the Under-Secretary for Special Political Affairs, the Deputy, Office of the High Commissioner for Refugees, and the Assistant Secretary General for Interagency Affairs. Sam Pope Brewer, "Rogers Gives \$1-Million to Thant For Relief Work in East Pakistan," *The New York Times* (August 10, 1971), p. 3. Among the relevant U.N. agencies are: U.N. Relief and Works Agency for Palestine Refugees; United Nations Children's Fund (UNICEF); Office of United Nations High Commissioner for Refugees. Among the relevant specialized agencies are: Food and Agricultural Organization, with Headquarters in Rome; World Health Organization, with Headquarters in Geneva; International Development Association with Headquarters in Washington, D.C.; International Bank for Reconstruction and Development, with Headquarters in Washington, D.C.; the World Meteorological Organization with Headquarters in Geneva; and the International Atomic Energy Agency, with Headquarters in Vienna.

- o If a Pan American Disaster Insurance Corporation is established and organized for risk and cost-sharing, through what mechanism should disaster relief benefits be applied?*

* E.g., A specialized agency for the OAS, or the OAS Inter-American Economic and Social Council (IA-ECOSOC), or a private Pan American Disaster Relief Organization.

V. RESOURCE MANAGEMENT

Efficacious management of resources for disaster mitigation and relief of necessity relates to the choice of efficacious organizations for the conduct of these operations. But there may be techniques or issues of resource management which exist independent of the unilateral, bilateral or multilateral channels of assistance.

- o Insofar as data and analyses are available, is there reason to believe that resources should be re-allocated so as to augment: (1) disaster avoidance R&D or programs; (2) pre-disaster mitigation programs; (3) pre-disaster establishment of post-disaster relief capabilities; (4) various alternate programs of post-disaster relief?
- o If multi-use disaster relief policies were instituted (providing common stockpiles and capabilities for certain international and domestic civil emergencies and disasters), would it be feasible to pre-purchase, pre-position, re-allocate and disperse disaster relief supplies and equipment, with economies of cost and reaction-time resulting? Assuming the unavailability of some civil defense resources, in event of foreign disasters, would it be possible to earmark limited segments of domestic civil defense stockpiles and equipment for temporary use in support of international disaster relief?*

* Assuming establishment of an international or regional Disaster Insurance Corporation and Fund, there might be savings through pre-purchase by participating states of disaster relief stockpiles from various surplus agricultural or other commodities, in local currencies, utilizing local labor, etc. Advance planning of a regional or world-wide logistical network could save substantial sums otherwise required for long-range airlift and sealoift. (In the 10th Report of the U.S. AID Disaster Relief Coordinator, Stephen R. Tripp, the former DRC Coordinator, notes: "AID/DRC and voluntary agencies working together believe that foreign disaster relief operations are strengthened when... (3) Air transport is used only for high priority, specifically identified supplies...." Despite requests for pre-positioning of a disaster relief logistical system, Mr. Tripp notes emphasis upon *ad hoc* post disaster

Past international disaster relief experience has involved famines in which foreign nutrition experts have been able to introduce modest changes in the preparation, cooking, or utilization of indigenous foods or plants, with resultant enhancement of nutritional value or caloric intake. Pre-disaster natural resources surveys may prove more valuable, at lower cost, than post disaster airlifting of expensive foreign food-stuffs which do not appeal to the tastes or habits of afflicted populations. Inventorying of scarce manpower resources (possibly utilizing computers) may also be more sensible than the post-disaster importation of foreign personnel. In the Peruvian earthquake of 1970, for example, there was a substantial airlift of foreign doctors into the affected areas, taxing communications channels, hotel accommodations, and the time of key Peruvian officials. Eventually, more than enough Peruvian doctors were located, with minimal drain on national resources and no language and cultural barriers, but at the outset the Peruvian government could not locate the needed personnel. The emphasis upon post-disaster relief deserves rethinking.

supply ordering, in recommendation (6): "Over-all assessments [of the disaster should be] made prior to shipping food and things in order to avoid waste, duplication and distribution difficulties..." AID/DRC does not maintain stockpiles or reserve stocks abroad, except for "certain items" stored in Panama, under AID/DRC or USSOUTHCOM. *Ninth Report*, p. 168. The present AID/DRC Coordinator, Russell S. McClure, informs me by telephone that a second forward area stockpile and logistic base will be established in the Middle East, in conjunction with the assistance of the U.S. Department of Defense, at a place which can handle both commercial and military aircraft transports, and commercial and naval sea cargo. This is an important, but modest step in the right direction, it would appear. Without pre-disaster orders, purchases, and arrangements for equipment rotation among some of the 50 or so foreign disasters in which AID participates, it has never been possible to provide sufficient electric generating equipment, for example. See the Tenth Report of the Disaster Relief Coordinator, AID, for an observation on the post-disaster purchasing policy as it has affected the availability of electric generating equipment. Despite various disasters in which the U.S. has been asked for electric power generating equipment, the post-disaster purchasing policy has prevailed. "In no case has AID/DRC been able to come up with the necessary equipment, although many hours have gone into trying. Power shortages exist throughout the United States and the world so that there is always a big demand for power equipment and a long lead time is needed before delivery can be made." *Tenth Report*, p. 208.

Effective resource management may involve considerations of technological issues, cited in Section III, *supra*. The provision of expensive fixed-site electric generators may not be sufficiently economical to justify the effort, irrespective of the lead-time problem (soluble by a pre-disaster purchasing policy). But it is possible that an even more expensive electric generating system would make economic sense if it could be moved from disaster to disaster as necessary, perhaps designed for transshipment within the giant C-5A air transport, or designed as a squadron of planes which were, themselves, portable electric generating units.

Some expenditures on a national basis may not appear sensible unless the payoffs involve the possibility of domestic as well as foreign emergency assistance. Thus, the conception of disaster assistance abroad and its relationship to civil defense and disaster relief within the domestic society may determine whether various pre-disaster expenditures are viewed as sufficiently "cost-effective" to justify the appropriations.

VI. COST-SHARING AND DISASTER INSURANCE POOLING

A major obstacle to more efficacious disaster relief efforts on a worldwide basis may be the tradition of give-away financing. If disaster relief operations are conceived of as, in essence, charitable operations, it may be difficult to obtain the requisite public funding for efficacious pre-disaster stockpiling, construction safety programs, and other programs requiring large capital outlays.

The cost to the U.S. of participating in the relief of foreign disasters, has, with variations, been rising over the last decade, while non-military foreign aid expenditures have been contracting. Similarly, the federal expenditures on domestic disaster relief have been rising during the last decade. Under Public Law 81-875, with minor modifications, the President has been able to declare domestic disaster areas, and to provide funds, mainly in the public sector, to state and local governments, since the year 1950. In the period 1953-1960, domestic disaster assistance totaled \$86.6 million. In the comparable eight year period from 1962-1969, the total was \$655.5 million. In calendar year 1969 the President declared more disasters than in any prior year, 29 in number, affecting 23 states.* An expanding federal give-away program for either domestic or foreign disaster relief will, at some point, become both too costly and too unpalatable for the elected officials who must appropriate the funds.

The February 1971 earthquake in the Los Angeles area, with widespread loss to property owners, many of whom lacked insurance coverage, has encouraged various Congressional proposals for a Federal Disaster (or Earthquake) Insurance Corporation and Fund.** This is a healthy

* See "Legislative History, P.L. 91-606, Disaster Relief Act of 1970," 3 *U.S. Code Congressional and Administrative News*, 91st Congress, Second Session 54, 86-91 (1970).

** See H.R. 5515, Rep. Mailliard's proposed Earthquake Insurance Act; Rep. Smith's H.R. 1163, for utilization of Commodity Credit Corporation agricultural products H.R. 6266, a proposed Federal Disaster Insurance Act; H.R. 6267, a proposed National Earthquake Insurance Act. See also: H.R. 6270, H.R. 6898, H.R. 6977, S. 871, S. 903, and S. 1774.

to encourage potential beneficiaries to participate in cost-sharing and organization of disaster relief programs before disasters strike.

- o Is it possible to establish an international (universal or regional) Disaster Insurance Corporation and Fund? Or U.N. Agency?
- o How can beneficiary states which now receive minimal but free foreign disaster relief services be encouraged to participate in a cost-sharing and risk-sharing program? Should there be two or three sets of services: "core services" which are provided on a gratis basis for humanitarian reasons; insured services which are provided only to participating states; and partially-subsidized services, serving as inducements to participate in International Disaster Insurance programs and possibly as inducements to establish "qualifying" birth control programs?

One glance at the Environmental Science Services Administration's map of *World Seismicity 1961-1969* is enough to demonstrate that most states in the Americas, and Asian states along the Pacific Ocean share high risks of earthquakes. If an international organization on a worldwide basis is too ambitious a start, consideration might be given to a Pan American insurance pool, with a possible counterpart among states in East Asia and the Southern Pacific.

In conclusion, my preliminary investigation of U.S. participation in the relief of foreign disasters suggests more issues than answers. But it does appear that there is much room for improvement, possibly at reduced costs to the United States government, if an international cost-sharing system is established. If the cost of these operations is spread more widely, the United States government may be more ambitious in its official "recognition" of disasters. Disaster relief operations can serve as a bridge from distrust to friendship; quite possibly, the "recognition" of the various natural disasters in mainland China could contribute to the normalization of U.S.-Chinese relations. Politics aside, disaster relief

efforts can combine both the technological wealth of the United States and the deep humanitarian tradition of her people; the opportunities invite exploration.